Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

in which its notes somewhat resemble those of the Canary—the Goldfinch often introduces its call-note—not at all to the detriment of the song. When many Goldfinches sing together in the tree-tops, the effect of the song is most pleasing; and perhaps a feature of the singing that adds rather than detracts, from the total effect of the song is the fact that the birds lack loudness in their utterance.

My rather ambitious attempt to give a philosophy of bird utterance may have led the reader to expect something more satisfying than I have been able to offer. Still I hope I have put down my ideas clearly, and that they are not altogether commonplace. Ten years of daily observation have revealed many interesting facts about the notes of our birds, and if I have not done better in my attempted analysis of their utterance, it is, I think, mainly due to lapses of memory. Unless the observer takes copious notes when out-of-doors, he will surely omit much in any effort to describe in detail the almost endless variation, at different seasons of the year, of the utterance of our birds. Hence the thoughts I have set down are more or less of a tentative character which longer experence, and greater efforts to secure the most complete knowledge attainable, may materially modify.

This paper has already grown to a great length; and lest a bird lover's enthusiasm lead me to trespass further on the patience of my readers, I shall end with a brief summary of my subject. It has been my purpose to outline my method of studying ornithology, and to indicate roughly the results of eleven years of daily observation of bird life. I realize that in my attempt to set down in a general way the various aspects of bird life, I have not maintained a unity of plan that the thoughtful reader would expect to find. I may remind him, however, that in an article that purports merely to introduce the subject, variety rather than unity, will be most in evidence. The longest part of the present article has dealt with the notes of birds, because both the writer and the general reader are probably most interested in the songs of birds. I may be pardoned, I am sure, if I venture, as a bird lover, to hope that what I have written will awaken a little more interest and even some enthusiasm in a branch of natural history that is steadily gaining in importance both in school carricula and in nature lover's clubs. It is certain that the next generation will not be indifferent to the varied and abundant bird life of our woods and fields.

NAIADGEOGRAPHY
OF
MISSOURI

CLASSIFIED LIST OF NAIADES

	North Missouri						
	N. E. Mo.		Cen. North Mo.		N. W. Mo. Loess-Alluvial Region		
	Mississippi River	Des Moines River	Chariton River Basin	Grand River Basin	Platte River Basin	Nodaway River Basin	Tarkio River Basin
Family I. MARGARITANIDAE (Ort.)							
Genus I. *CUMBERLANDIA* (Ort.)							
1.—*C. monodonta* (Say)(=*Margaritana monodonta* (Say))	×	–					
Family II. UNIONIDAE (Ort.)							
Sub-Family. I. UNIONINAE (Ort.)							
Genus II. *FUSCONAIA* (Simp.)							
2.—*F. undata* (Bar.) (=*Quadrula trigona* (Lea))	×	×					
(1) *F. undata trigona* (Lea)							
(2) *F. undata trigonoides* Frierson M. S. (New Sub-Species)					×		
3.—*F. flava* (Raf.) (=*Quadrula rubiginosa* (Lea))	×						
4.—*F. hebetata* (Con.) (=*Quadrula hebetata* (Con.))							
5.—*F. ebena* (Lea) (=*Quadrula ebena* (Lea))	+	×					
Genus III. *AMBLEMA* (Raf.)							
6.—*A. peruviana* (Lam.) (=*Quardula plicata* (Say))	×						
7.—*A. rariplicata* (Des.)	×	×					
8.—*A. perlicata* (Con.) (=*Quadrula perplicata* (Con.))	×		+	+	+	×	+
(3) *A. perplicata Quintardii* (Cragin)							
9.—*A.* (*plicata*) *costata* (Raf.) (=*Quadrula undulata* (Bar.))				–			
Genus IV. *MEGALONAIAS* Utterback. (New Genus)							
10.—*M. heros* (Say) (=*Quadrula heros* (Say))	+	×	×	+	+		
Genus V. *Quadrula* (Raf.)							
11.—*Q. pustulosa* (Lea)	+	×					
(4)—*Q. pustulosa schoolcraftensis* (Lea)	+	×	+	+	+	×	+
(5) *Q. pustulosa asperata* (Lea)							
12.—*Q. quadrula* (Raf.) (=*Quadrula lachrymosa* (Lea))	×	×	+	+	+	×	+
(6) *Q. quadrula contraryensis Utterback.* (New Sub-Species)							
13.—*Q. nodulata* (Raf.) (=*Quadrula pustulata* (Lea))	–						
14.—*Q. fragosa* (Conrad)	×	–					
15.—*Q. aspera* (Lea)							
16.—*Q. nobilis* (Con)				–			
17.—*Q. verrucosa* (Raf.) (=*Tritogonia tuberculata* (Simp.))	+	×	×	+	+	×	+
18.—*Q. metanevra* (Raf.)	×	×		×			
(7) *Q. metanevra Wardii* (Lea)		–					
19.—*Q. cylindrica* (Say)							
Genus VI. *ROTUNDARIA* (Raf.)							
20.—*R. tuberculata* (Raf.) (=*Quadrula tuberculata* (Raf.))	×						
21.—*R. granifera* (Lea) (=*Quadrula granifera* (Lea))	+	×					
Genus VII. *PLETHOBASUS* (Simp.)							
22.—*P. cooperianus* (Lea) (=*Quadrula cooperiana* (Lea))							
23.—*P. cyphius* (Raf.) (=*Pleurobema aesopus* (Greene))	×	–					
Genus VIII. *PLEUROBEMA* (Raf.)							
24.—*P. obliquum* (Lam.) (=*Quadrula obliqua* (Lam.))	×						
(8) *P. obliquum plenum* (Lea) (=*Quardula plena* (Lea))	–						
(9)—*P. obliquum pyramidatum* (Lea) (=*Q. pyramidata*)	×						
(10) *P. obliquum catillus* (Con.)							
(11) *P. obliquum coccineum* (Con.)							
25.—*P. catillus* (Con.) (=*Quad. solida* (Lea))	+	×					
26.—*P. coccineum* (Con.) (=*Quad. coccineum* (Con.))							
27.—*P. missourense* (Marsh)							
28.—*P. Utterbackii Frierson* (New Species)[1]							
Genus IX. *ELLIPTIO* (Raf.)							
29.—*E. nigra* (Raf.) (=*Unio crassidens* (Lam.))	×	×					
30.—*E. dilatata* (Raf.) (=*Unio gibbosa* (Bar.))	+	+					
(12) *E. dilatata subgibbosa* (Lea) (=*U. subgibbosa* (Lea))							
(13) *E. dilatata delicata* (Simp.) (=*U. subgibbosa delicata*)							
Genus X. *UNIOMERUS* Conrad							

APHY

I

AIADES

	North Missouri								Central Missouri				South Missouri				
	N. E. Mo.		Cen. North Mo.		N. W. Mo. Loess-Alluvial Region				Ozark Border	Loess Region	Ozark Center	Ozark Plateau	S. W. Mo.	Ozark Plateau	O. Center	S. E. Mo. Miss. Low-land	
	Mississippi River	Des Moines River	Chariton River Basin	Grand River Basin	Platte River Basin	Nodaway River Basin	Tarkio River Basin	N. W. Missouri Lakes	Osage River Basin	Blackwater River Basin	Meramec River Basin	Gasconade River Basin	Neosho River Basin	White River Basin	Black River Basin	St. Francis River Basin	General Distribution
onta (Say))	×	–							–		–						
))	×	×															
									×		×	×					
Sub-Species)					×				–								
a))	×											–		×	×		
on.))									–					–	–		
	+	×												–			
Say))	×								–								
	×	×							–								
(Con.))	×		+	+	+	×	+							×			
									+	×	×	–	×	+	+	×	
dulata (Bar.))				–					×	×	–	×		–			
Genus)																	
	+	×	×	+	+				×	–		×					
	+	×							–					–			
	+	×	+	+	+	×	+					×					
									–								
sa (Lea))	×	×	+	+	+	×	+	+	–	×							
Sub-Species)								–									
(Lea))	–													–			
	×	–							×					–			
									–								
				–					+								
ata (Simp.))	+	×	×	+	+	×	+		+	×	×	×	–	+	+	+	G
	×	×		×					+		×	+	×	–	–		G
		–															
													–	+	+	+	
ata (Raf.))	×								+	×	×	+	–	+	+	+	G
(Lea))	+	×							–					–			
ana (Lea))											–						
(Greene))	×	–										–					
(Lam.))	×													–			
ena (Lea))	–											–		–			
yramidata)	×								×			×					
									+		+	×		×	×	×	
									×					×	×	×	
	+	×												+	+	+	
Con.))														+	×	+	
															–		
													–	×	+	×	
))	×	×										×		–			
	+	+							+	×	+	×	+	+	+	+	
bosa (Lea))														+	+	×	
osa delicata)														×	+	×	

15.—*Q. aspera* (Lea)							
16.—*Q. nobilis* (Con)				−			
17.—*Q. verrucosa* (Raf.) (=*Tritogonia tuberculata* (Simp.))	+	×	×	+	+	×	+
18.—*Q. metanevra* (Raf.)	×	×		×			
(7) *Q. metanevra Wardii* (Lea)		−					
19.—*Q. cylindrica* (Say)							
Genus VI. *ROTUNDARIA* (Raf.)							
20.—*R. tuberculata* (Raf.) (=*Quadrula tuberculata* (Raf.))	×						
21.—*R. granifera* (Lea) (=*Quadrula granifera* (Lea))	+	×					
Genus VII. *PLETHOBASUS* (Simp.)							
22.—*P. cooperianus* (Lea) (=*Quadrula cooperiana* (Lea))							
23.—*P. cyphius* (Raf.) (=*Pleurobema aesopus* (Greene))	×	−					
Genus VIII. *PLEUROBEMA* (Raf.)							
24.—*P. obliquum* (Lam.) (=*Quadrula obliqua* (Lam.))	×						
(8) *P. obliquum plenum* (Lea) (=*Quardula plena* (Lea))	−						
(9)—*P. obliquum pyramidatum* (Lea) (=*Q. pyramidata*)	×						
(10) *P. obliquum catillus* (Con.)							
(11) *P. obliquum coccineum* (Con.)							
25.—*P. catillus* (Con.) (=*Quad. solida* (Lea))	+	×					
26.—*P. coccineum* (Con.) (=*Quad. coccineum* (Con.))							
27.—*P. missourense* (Marsh)							
28.—*P. Utterbackii Frierson* (New Species)[1]							
Genus IX. *ELLIPTIO* (Raf.)							
29.—*E. nigra* (Raf.) (=*Unio crassidens* (Lam.))	×	×					
30.—*E. dilatata* (Raf.) (=*Unio gibbosa* (Bar.))	+	+					
(12) *E. dilatata subgibbosa* (Lea) (=*U. subgibbosa* (Lea))							
(13) *E. dilatata delicata* (Simp.) (=*U. subgibbosa delicata*)							
Genus X. *UNIOMERUS* Conrad							
31.—*U. tetralasma* (Say)	×	×		+			
(14) *U. tetralasma comptodon* (Say)	×	×		+			
Sub-Family II. ANODONTINAE (Ort.)							
Genus XI. *SYMPHYNOTA* (Lea)							
32.—*S. complanata* (Bar.)	+	×		+	+	+	+
33.—*S. costata* Raf.)	×	×					
Genus XII. *ARCIDENS* Simpson							
34.—*A. confragosus* (Say)	×				−		
Genus XIII. *LASTENA* (Raf.)							
35.—*L. suborbiculata* (Say) (=*Anodonta suborbiculata*)	−						
36.—*L. ohiensis* (Raf.) (=*Anodonta imbecillis* Say)	−						
Genus XIV. *ANODONTA* (Lamarck)							
37.—*A. grandis* (Say)	+	+	−	×	×		×
38.—*A. dakotana Frierson M. S.* (New Species)							
39.—*A. corpulenta Cooper*	−						
40.—*A. Danielsii* (Lea)	−			+	+		+
41.—*A. Bealii* (Lea							
Genus XV. *ANODONTOIDES* (Simpson)							
42.—*A. ferussacianus* (Lea)	−						
Genus XVI. *ALASMIDONTA*							
43.—*A. calceolus* (Lea)							
44.—*A. marginata* Say (=*A. truncata* Wright)							
Genus XVII. *STROPHITUS* (Raf.)							
45.—*S. edentulus* (Say)	+	+		−	−		
Sub Family III. LAMPSILINAE (Ort.)							
Genus XVIII. *ELLIPSARIA* (Raf.)							
46.—*E. occidentalis* (Con.) (=*Ptychobranchus clintonense* (Simp.))							
Genus XIX. *OBLIQUARIA* (Raf.)							
47.—*O. reflexa* (Raf.)					×		
Genus XX. *CYPROGENIA* (Agassiz)							
48.—*C. Aberti* (Con.)							
(15) *C. Aberti lamarckiana* (Lea)							
Genus XXI. *OBOVARIA* (Raf.)							
Sub-Genus I. *PSEUDOON* (Simp.)							
49.—*O.* (*Pseudoon ellipsis* (Lea)	×	×					
Genus XXII. *NEPHRONAIAS* (Cross and Fisher)							
50.—*N. ligamentina* (Lam.) (=*Lampsilis ligamentina* (Lam.))	+	+					
(16) *N. ligamentina gibba* (Simp.)							
51.—*N. ellipsiformis* (Con.) (=*Lamp. ellipsiformis* (Con.))[2]							
(17) *N. ellipsiformis venusta* (Lea) (=*Lamp. venusta* (Lea))[2]							
52.—*N. Pleasii* (Marsh) (=*Lamp. pleasii* (Marsh))[2]							
53.—*N. ozarkensis* (Call) (=*Lamp. ozarkensis* (Call))							
Genus XXIII. *AMYGDALONAIAS* (Cross and Fisher)							
54.—*A. donaciformis* (Lea) (=*Plagiola donaciformis* (Lea))	×	×		+	×		

									×								
									−								
				−					+								
ata (Simp.))	+	×	×	+	+	×	+		+	×	×	×	−	+	+	+	G
	×	×		×					+		×	+	×	−	−		G
		−															
													−	+	+	+	
ata (Raf.))	×								+	×	×	+	−	+	+	+	G
(Lea))	+	×							−					−			
ana (Lea))											−						
(Greene))	×	−										−					
(Lam.))	×													−			
ena (Lea))	−											−		−			
yramidata)	×								×			×					
									+		+	×		×	×	×	
									×					×	×	×	
	+	×												+	+	+	
Con.))														+	×	+	
															−		
													−	×	+	×	
))	×	×										×		−			
	+	+							+	×	+	×	+	+	+	+	
bosa (Lea))														+	+	×	
osa delicata)														×	+	×	
	×	×		+					×	×							
	×	×		+					×	×							
	+	×		+	+	+	+	+	−	×	−						
	×	×							−	×	−			+	+	+	
	×				−			×	+								
iculata)	−							+		−							
Say)	−							×	−	−				−			
	+	+	−	×	×		×	+	−	×							
s)								−									
	−																
	−			+	+		+										
									−								
	−																
													×	+	+	+	
									−		+		−		+	+	
	+	+		−	−				+	×	+	+	+	+	+	×	G
lintoncnse (Simp.))														+	×		
					×				+			−		−			
													+	×	×	×	
														−			
	×	×							−					−			
her)																	
entina (Lam.))	+	+							+		+	+	+	+	+	+	G
									−					−			
mis (Con.))[2]									+		×			−			
enusta (Lea))[2]												−		−			
rsh))[2]														−	−		
Call))														−	−		
d Fisher)																	
ormis (Lea))	×	×		+	×				×		×	×					
))	×																

41.—*A. Bealii* (Lea							
Genus XV. *ANODONTOIDES* (Simpson)							
42.—*A. ferussacianus* (Lea)	−						
Genus XVI. *ALASMIDONTA*							
43.—*A. calceolus* (Lea)							
44.—*A. marginata* Say (=*A. truncata* Wright)							
Genus XVII. *STROPHITUS* (Raf.)							
45.—*S. edentulus* (Say)	+	+		−	−		
Sub Family III. LAMPSILINAE (Ort.)							
Genus XVIII. *ELLIPSARIA* (Raf.)							
46.—*E. occidentalis* (Con.) (=*Ptychobranchus clintonense* (Simp.))							
Genus XIX. *OBLIQUARIA* (Raf.)							
47.—*O. reflexa* (Raf.)					×		
Genus XX. *CYPROGENIA* (Agassiz)							
48.—*C. Aberti* (Con.)							
(15) *C. Aberti lamarckiana* (Lea)							
Genus XXI. *OBOVARIA* (Raf.)							
Sub-Genus I. *PSEUDOON* (Simp.)							
49.—*O.* (*Pseudoon ellipsis* (Lea)	×	×					
Genus XXII. *NEPHRONAIAS* (Cross and Fisher)							
50.—*N. ligamentina* (Lam.) (=*Lampsilis ligamentina* (Lam.))	+	+					
(16) *N. ligamentina gibba* (Simp.)							
51.—*N. ellipsiformis* (Con.) (=*Lamp. ellipsiformis* (Con.))[2]							
(17) *N. ellipsiformis venusta* (Lea) (=*Lamp. venusta* (Lea))[2]							
52.—*N. Pleasii* (Marsh) (=*Lamp. pleasii* (Marsh))[2]							
53.—*N. ozarkensis* (Call) (=*Lamp. ozarkensis* (Call))							
Genus XXIII. *AMYGDALONAIAS* (Cross and Fisher)							
54.—*A. donaciformis* (Lea) (=*Plagiola donaciformis* (Lea))	×	×		+	×		
55.—*A. truncata* (Raf.) (=*Plagiola elegans* (Lea))	×						
Genus XXIV. *PLAGIOLA* (Raf.)							
56.—*P. lineolata* (Raf.) (=*Plagiola securis* (Lea))	+						
Genus XXV. *LASMONOS* (Raf.)							
57.—*L. fragilis* (Raf.) (=*Lamp. gracilis* (Barnes))	+	×	+	+	+	+	+
58. *L. Simpsonii* (Ferriss) (=*Lamp. simpsonii* (Fer.))							
59.—*L. leptodon* (Raf.) (=*Lamp leptodon* (Raf.))	−						
Genus XXVI. *PROPTERA* (Raf.)							
60.—*P. alata* (*Say*) (=*Lamp. alata* (Say))	×	×	×	+	+	+	×
61.—*P. purpurata* (Lam.) (=*Lamp. purpurata* (Lam.))							
62.—*P. laevissima* (Lea) (=*Lamp. laevissima* (Lea))	×	×	+	+	+	×	×
63.—*P. capax* (Green) (=*Lamp. capax* (Green))	+	×					
Genus XXVII. *TOXOLASMA* (Raf.)							
64.—*T. parva* (Barnes) (=*Lamp parva* Bar.))	×						
65.—*T. texasensis* (Lea) (=*Lamp. texasensis* (Lea))				−			
66.—*T. lividum* (=*Lamp. glans* (Lea))							
Genus XXVIII. *EURYNIA* (Raf.)							
Sub-Genus II. *MICROMYA* (Agassiz)							
67.—*E.* (*Micromya*) *lienosa* (Con.) (=*Lamp. lienosa* (Con.))							
68.—*E.* (*Micromya*) *iris* (Lea) (=*Lamp. iris* (Lea))							
69.—*E.* (*Micromya*) *brevicula* (Call.) (=*Lamp brevicula* (Call))[3]							
(18) *E. Micromya*) *brevicula Brittsii* (Simp.) (=*Lamp. brittsii*)[3]							
Sub-Genus III. *EURYNIA* (*sens. strict.*)							
70.—*E.* (*Eurynia*) *subrostrata* (Say) (=*Lamp. subrostrata*)				×			
71.—*E.* (*Eurynia*) *recta* (Lam.) (=*Lamp. recta*)	+	×			−		
Genus XXIX *LAMPSILIS* (Raf.)							
72.—*L. teres* (Raf.) (=*Lamp. anodontoides* (Lea))	×	×	+	×	×		×
73.—*L. fallaciosa* (Smith)			+				
74.—*L. Higginsii* (Lea)	−						
75.—*P. Powellii* (Lea)							
76.—*L. luteola* (Lam.)	−						
77.—*L. luteola rosacea* (DeKay)							
78.—*L. cardia* (Faf.) (=*Lamp. ventricosa* (Barnes))	+	×		×			
(20) *L. cardia satura* (Lea)							
Genus XXX. *TRUNCILLA* (Raf.)							
79.—*T. Curtisii Frierson and Utterback* (New Species)							
80.—*T. Lefevrei Utterback* (New Species)							
100. = Total of Species (80) and Sub-Species (20) for Missouri, including 1 New Genus, 4 New Species, 3 New Sub-Species.							

---

[1] Recent studies of the animal characters of *Utterbackii* has found this species to belong to the GENUS FUSCONAIA.

[2] Later studies would group these species under *Eyrynia, Sub-Genus Micromya.*

[3] Both of these LAMPSILINAE were subsequently found to belong to the GENUS LAMPSILIS near to *L. luteola* (*Lam.*).

									–								
	–																
													×	+	+	+	
									–		+		–		+	+	
	+	+		–	–				+	×	+	+	+	+	+	×	G
lintoncnse (Simp.))														+	×		
					×				+			–		–			
													+	×	×	×	
														–			
	×	×							–					–			
her)																	
entina (Lam.))	+	+							+		+	+	+	+	+	+	G
									–					–			
mis (Con.))[2]									+		×			–			
enusta (Lea))[2]												–		–			
rsh))[2]														–	–		
Call))														–	–		
d Fisher)																	
ormis (Lea))	×	×		+	×				×		×	×					
a))	×								+		×	×		×			
a))	+								+	×		×		–			
es))	+	×	+	+	+	+	+		+	×	×	×					
i (Fer.))														–			
))	–													–			
	×	×	×	+	+	+	×	–	×		×	×					
(Lam.))														+	×		
Lea))	×	×	+	+	+	×	×	+			–	×					
)	+	×															
	×							+	–	+				–			
ea))				–													
													–	+			
enosa (Con.))														+	–		
ea))														+	–		
brevicula (Call))[3]														+	+		
=*Lamp. brittsii*)[3]									–								
subrostrata)				×						–			×				
)	+	×			–				+	×	+	×	×	+	+	+	G
a))	×	×	+	×	×		×	×				–		–			G
			+					–	×	×	×						
	–													–			
														–			
	–								–	–	×	×	–	+	×	×	
														–	–		
nes))	+	×		×					+	×	+	+	×	+	+	+	G
														–	–		
prcies)														+	–		
														–	–		
for Missouri, includ- ew Sub-Species.																	

---

ii has found this species to belong to the GENUS FUSCONAIA.

ia, Sub-Genus Micromya.

to belong to the GENUS LAMPSILIS near to *L. luteola* (*Lam.*).

NAIADGEOGRAPHY OF MISSOURI.

BY W. I. UTTERBACK.

The writer would presume to use the term, Naiadgeography, because it is a convenient and comprehensive expression for "the geographic distribution of the *Naiades*, or Fresh-water mussels." This coined term is employed here to correspond with that one in good accepted usage, that is, Zoögeography. However, the latter term is less specific, having reference to "the geographic distribution of animals generally."

After some years of study of the *Naiades* of Missouri the writer has been able to work out a key to the mussel faunae which may be used as a summarized account to precede the tabulated list on Naiadgeography.

I.—PRAIRIE DRAINAGE. Naiadgeography: — (Ecology: — Streams sluggish, turbid, mud bottom); (Coincidental Morphology:— *Shells mostly large, smooth, inflated*).

  1.—*NORTH MISSOURI FAUNA*.—Missouri R. Southern Boundry. Physiography:—Level or rolling plains with lower stream conditions; Coincidental Characters:—*Mussels scarce, mostly lacustrine.*

    a.—NEW PRAIRIES, OR GLACIAL PLAINS.

    a1.—MISSOURI RIVER FLOOD PLAINS (*Depauperated Mussel Fauna*).

  2.—*CENTRAL MISSOURI FAUNA*.—Missouri R. Northern Boundry. Physiography:—Intermediate Topography and Hydrography; Coincidental Characters:—*Mussels fairly abundant, primitive-modern.*

II.—OZARK DRAINAGE. Naiadgeography.—(Ecology:—Streams swift, clear, rock bottom); (Coincidental Morphology:—*Shells mostly small, rough, compressed*).

  2.—*CENTRAL MISSOURI FAUNA*.—Ozark Crest Southern Boundry.

    a.—Ozark Border (Lower Osage).

    b.—Ozark Plateau (Gasconade Basin).

    c.—Ozark Center (Meramec Basin).

  3.—*SOUTH MISSOURI FAUNA*,—Southern Slope of the Ozark Uplift. Physiography:—Dissected Uplift with upper steam conditions; Coincidental Characters:—*Mussels abundant, modern mostly fluviatile.*

    a.—Ozark Border (S. W. Mo., Neosho Basin).

    b.—Ozark Plateau (White River Basin).

    c.—Ozark Center (Black River Basin).

a2.—MISSISSIPPI FLOOD PLAINS AND LOWLANDS (S. E. Mo. *Depauperated Mussel Fauna*). This region and the similar one above (a1) are really separate from both the Ozarks (II) and the Praities (I) since their ecologic conditions, i. e., the excess of loess and other alluvia in their waters, are the causes of their *impoverished to extinct mussel faunae.*

The author would adopt the same nomenclature in this paper as the one employed in his illustrated and descriptive catalogue of the *Naiades* of Missouri.[1] It may be well to repeat here that the radical changes from that of the Simpsonian system[2] are due to the acceptance of the Rafinesque Priority as recently revived by Frierson,[3] Ortmann, Vanatta[5] and other recognized students of *Naiades;* also to a greater recognition of the nutritive and reproductive structures of the soft parts than to the conchological morphology as bases of classification; however, the writer would not disregard the value of shell characters, yet does not consider their constancy so great for taxonomic purposes. In the following list the progressive form of taxonomy is employed and, in most cases, the Lindahl orthographic modification[6] of Simpson and others is used; however, it is thought that, instead of following the uniform code of not capitalizing names for species in any case, it would be more consistent with Latinic etymology to retain the initial capital in all names of species derived from those of persons when used substantively.

For the sake of clearness the more familiar names, when appearing as synonyms, follow the revised terms as equalities in parentheses, but, in most cases, only the abbreviated name of the author can appear for lack of space. In the accompanying list the geographic distribution (*Naiadgeography*) of species and subspecies is indicated thus: — = scarce; X = fairly abundant; + = abundant, as occuring individually; G = General Distribution of Species.

---

[1] American Midland Naturalist, Vol. IV, Plates I-XXIX, -1915-1916; also special paper p. 519.

[2] C. T. Simpson, Proc. U. S. Nat. Mus., XXII, pp. 504-1044, Pl. XVIII, 1900b.

[3] L. S. Frierson, Nautilus, XXVIII, p. 6, May 1914; Footnote 5, Mid. Nat., IV, p. 519.

[4] A. E. Ortmann, *op cit.*, as collaborator.

[5] E. G. Vanatta, Proc. Acad. Nat. Sci. Phil., pp. 549-559, Dec. 8, 1915.

[6] Josua Lindahl, Jour. Cinn. Soc. Nat. Hist., 1906.

SUMMARIZED DISTRIBUTION OF MISSOURI MUSSELS.

Gen. Mussel Faunae	No. of Mussel Species and Varieties			Total for each Fauna.
	Primitive (Unioninae)	Intermediate (Anodontinae)	Modern (Lampsilinae)	
1.—North Missouri	22	9	21	52
2.—South Missouri	12	4	28	44
3.—Cen. Missouri	19	8	26	53

In comparing with other lists of *Naiades*, mostly secured by the writer in correspondence with students for the surrounding States, it is found that North Missouri is mostly that of the Mussel fauna of Illinois and Iowa; that South Missouri belongs to the *great South-West*, i.e., Arkansas, Oklahoma, Louisiana and Texas and that *Central Missouri* is really a combined or transitional zone for these two sections of the Mississippi Valley. The Numbers in the second column of the following comparative lists represent those Species of the writer's list for Missouri that are identical with those of the lists most representative of the Upper Mississippi and the South-West:—

Upper Mississippi		*North Missouri*	
No. Species in Illinois (W. S. Strode's List)[1]	29	No. in common	29
No. Species in Iowa (T. Surber's List)	42	No. in common	40
South-West		*South Missouri*	
No. Species in Ark. (H. E. Wheeler's List)	50	No. in common	26
No. Species in Miss. & Tex. (L. Frierson's List)[2]	25	No. in common	15
No. Species in Okla. (B. F. Isely's List)[3]	29	No. in common	29
No. Species in La. (Vaughan & Frierson's List)	43	No. in common	21

Many peculiarities are noted in the *Naiadgeography of* Missouri. It is surely a geologic paradox to note a predominance of *primitive species of Naiades*, in the New Prairies, or Glacial Plains. Another problem to be worked out is that of the reason for the limitation of the distribution of *Elliptio dilatata*, *Nephronaias ligamentina* and *Strophitus edentulus*,—Species of the widest and most general distribution in other States. While *S. edentulus* is one of the commonest of shells for Central and South Missouri, yet its occurrence is very doubtful for North Missouri, as the author, in his more thorough investigation of this more accessible part of the State, was only able to secure two individuals and these were too immature and small to be assigned to any definite Species although they were so identified as *edentulus* by recognized students. As indicated in the accompanying Key to the Mussel Faunae these eccentricities of distribution are due to the very different faunal and ecologic conditions. Yet Mr. Bryant Walker, that thorough student of *Naiadgeography*, comments:—"There are some very interesting problems connected with the distribution of Missouri *Naiades* that should be worked out. The poverty of the fauna of the Missouri Valley, as compared with that of either the Upper Mississippi, or of the rivers that flow south through the Arkansas, is very curious. . . . I have never had sufficient data to attempt to even guess at the solution of it."

---

[1] W. S. Strode, Nautilus, V., p. 61, Oct, 1891; IX, pp. 115-116, Feb. 1896.

[2] L. S. Frierson, Nautilus, XXIV, p. 134, Apr. 1911.

[3] F. B. Isely, U. S. Bureau Fis. Doc. No. 792, pp. 1-24, 1914; U. S. Bu. Fish. Econ. Cir. No. 9, Feb. 17, 1914.

As to the depauperated to extinct faunae of the South-East Lowlands and of the immediate waters of the Loess-Alluvial Flood-Plains for the Missouri and Mississippi Rivers the writer agrees with Dr. Paul Bartsch of the Division of Mollusks, U. S. National Museum, and leader of the party for the U. S. Pearl Mussel Investigation of the Mississippi River during the summer of 1908. Dr. Bartsch writes: ". . . . we found no *Unios* between the mouth of the Missouri River and that of the Ohio in the Mississippi. This, I believe, is altogether *due to the enormous amount of mud emptied by the Missouri* into the Mississippi, making it impossible for the forms to exist there. . . . I have reported on the Missouri River as 'The Great Faunal Barrier.'"

Concerning the distinctive characteristics of the Ozark Fauna Dr. A. E. Ortmann remarks:—"The Ozark region apparently *is a continuation of the Cumberland Plateau* in the fauna of its rivers so that there will be geographic and faunistic relations with the Tennessee-Cumberland System." Mr. L. S. Frierson also makes this comment:—"The appearance of *Truncillae*, *Pleurobemae* and other forms, so intimately resembling those of East Tennessee, in the mountain streams of Missouri and Arkansas is an interesting and remarkable fact illustrating the power of environmental factors."[1]

The writer is in the position to verify the observations of Ortmann,[2] Clark and Wilson[3] and other field investigators, who have made source-to-mouth surveys of Ohio Valley streams, after having made similar surveys of the most representative streams of the general faunae of this State, especially those of Central and South Missouri, when, during the summers of 1913 and 1916, it was the writer's pleasure and profit to survey the Osage and White Rivers from head-waters to mouth by means of a row-boat. The author is especially able to vouch for the report that many species, notably those of the most primitive *Quadrulae*, are generally found to be light, rough, compressed froms in the head waters and to become heavier, smoother and more inflated further down stream; e g., a plicated *Quadrula* may exist as a flat, light (conventional) *Quadrula undulata* (Barnes) in the swifter, shallower head-waters and as the heavy, inflated (conventional) *Q. plicata* (Say) in the quiet, deeper water nearer the mouth. Then, too, in some instances, it has been observed, especially in the Osage survey, that the nacre-color of certain species, such as *Rotundaria tuberculata* (Raf.) and *Elliptio dilatata* (Raf.), is found to be darker in the upper stream sections and fading out toward the mouth.

---

[1] An unpublished paper, read before a Washington (D. C.) Society of Scientists.

[2] A. E. Ortmann, Proc. Am. Phil. Soc., LII, No. 210, May–Aug., 1913.

[3] H. Walton Clark, and C. B. Wilson, U. S. Bu. Fish. Doc. No. 781, pp. 1-23.

CRITICAL NOTES ON NEW AND OLD GENERA OF PLANTS.—IX.

BY J. A. NIEUWLAND.

WINTERIA

Winteria Rehm. is but another way of writing *Wintera*. The latter name was used by Murray[1] in 1784. Another name should be used for the fungus. There is perhaps some diminutive form available for those who favor such and we refrain from adding a new one even though the available ones be rather undesirable.

MYRIACTIS

Kutzing's[2] plant name was preceded by a *Myriactis* Lessing,[3] and must receive a new appellation. *Gonodia* may be suggested, named after Eugene Gonod.

Gonodia Nom. Nov.

Myriactis Kutz, (1843) l. c. not *Myriactis* Lessing. (1831) l. c.

Gonodia pulvinatum Nov. Comb.

---

[1] Murray, Syst. ed. XIV 567 (1784).

[2] Kutzing, F. T., Phyc. Gen. (1843).

[3] Lessing, in Linnaea, VI., 127,. (1831).